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FM 6595 AEROSPACE TEST WG VAFB
TO SPACE SYSTEM MS DIV LOSA
BT
//~~S E C R E T~~//VWZD-17-4-75-5.
SUBJECT 8 - HOUR LAUNCH FLASH REPORT

I. A SATELLITE VEHICLE CONSISTING OF THRO BOOSTER NO 333 AND AGENA B ORBITAL STAGE NO. 1125 WAS LAUNCHED ON THE FIRST ATTEMPT FROM VAFB COMPLEX 75-3 PAD 4 AT 1630:12.45 PST ON 28 APRIL 1962, THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE AGENA SATELLITE WITH PAYLOAD IN A NEAR-POLAR ORBIT, WAS ACCOMPLISHED. READINGS FROM THE VTS RADAR PLOTTING BOARD GAVE AN INJECTION ALTITUDE OF 136 STATUTE MILES, AN

CLASSIFICATION CHANGED TO
[redacted]
By Authority of AFR 205-2
17 APR 1966

PAGE TWO VAFB
INJECTION PAD RRERENCED VELOCITY OF APPROXIMATELY 25,750 FPS, AN INJECTION FLIGHT PAT ANGLE 3F ABOUT 0 DEG, AND AN INITIAL DEPARTURE FLIGHT AZIMUTH OF APPROXIMATELY 172 DEG. THE INFLIGHT YAW LEFT MANEUVER DURING THE LATTER PART OF THE THOR 3OOST APPEARS TO HAVE BEEN SUCCESSFULLY ACCOMPLISHED. KODIAK TRACKING STATION CONFIRMED ORBITAL 5TATUS THROUGH RECEPTION OF TELEMETRY, RADAR, AND ACQUISITION BEACON SIGNALS ON THE FIRST)RBITAL PASS.

THE ORBIT ATTAINED APPEARS TO BE VERY CLOSE TO JOMINAL WITH AN ORBITAL PERIOD AND ALTITUDE ONLY 5LIGHTLY ABOVE PREDICTED.

A LIST OF SIGNIFICANT LAUNCH EVENTS FOLLOWS:

LIFTOFF	ZERO (1630:12.45 PST)
5TEERING INITIATED	90.87 SEC
1ECO (S1)	147.63 SEC
/ECO	156.68 SEC
:NABLE D1 AND D2 (S2)	152.58 SEC
)1 ON	155.29 SEC

'AGE THREE VAFB

)1 OFF	158.18 SEC
)2 ON	158.42 SEC
)2 OFF	164.43 SEC
;EPARATION COMMAND (S3)	165.09 SEC
;EPARATION COMPLETE	167.38 SEC
IGENA THRUST ATTAINMENT 90 PER CENT PC)	194.94 SEC
IGENA BURNOUT (70 PERCENT PC)	428.85 SEC
TS VERLORT RADAR FADE	459 SEC

TS TELEMETRY FADE
LINK1) 486 SEC

I. PRELIMINARY EVALUATION INDICATES THAT LAUNCH
EST OBJECTIVES WERE ACHIEVED AS FOLLOWS: (REF.
ETAILED TEST OBJECTIVES, LMSC 446404, SECTION 2)

A. THRO BOOSTER-OBJECTIVE ACHIEVED

OOSTER IGNITION AND LIFTOFF WERE SATISFACTORY. THE THOR ROLL PROGRAM AND PITCH
ROGRAM APPEAR TO HAVE BEEN PROPERLY EXECUTED.

HE PROGRAMMED YAW-LEFT MANEUVER DURING THOR
ID-BOOST WAS SATISFACTORILY ACCOMPLISHED. AT
AIN ENGINE CUTOFF, VEHICLE POSITION WAS WITHIN
SPHERE OF 5 NM RADIUS, FLIGHT PATH ANGLE WAS
ITHIN PLUS OR MINUS 4 DEG, AND VELOCITY WAS WITHIN
00 FPS OF THE NOMINAL VALUE.

BOOSTER STEERING AND EVENT COMMANDS WERE
ENERATED AND TRANSMITTED SATISFACTORILY BY THE
ROUND GUIDANCE SYSTEM AND VEHICLE RESPONSE TO
HE COMMANDS APPEARS TO HAVE BEEN PROPER. MECO
CCURED AT 147.64 SEC AS A RESULT OF COMMAND FROM
ROUND GUIDANCE SYSTEM. VERNIER ENGINE SOLO
PERATION LASTED 9.0 SEC WITH VECO OCCURING AT
56.68 SEC. SEPARATION WAS INITIATED BY A GROUND
UIDANCE COMMAND AT 165.09 SEC. GROUND GUIDANCE
YSTEM PRELIMINARY EVALUATION DATA INDICATE THE
OOSTER COAST APOGEE ALTITUDE WAS 107.77 NM (NOMINAL: 107.59 NM) AND THE BOOSTER COAST APOGEE
ELOCITY WAS 9959 FPS (NOMINAL: 9974FPS).
HE THOR TELEMETRY COMMUTATED CHANNELS

BECAME INOPERATIVE IMMEDIATELY AFTER LIFTOFF
AND REMAINED OUT THROUGHOUT FLIGHT.

B. SATELLITE VEHICLE - OBJECTIVES ACHIEVED

1. AGENA AIRFRAME AND ADAPTER

STRUCTRUAL INTEGRITY WAS MAINTAINED AND
NO EXCESS LOADS WERE APPLIED. THE USUAL 18-20 CPS
VEHICLE LONGITUDINAL OSCILLATIONS WERE PRESENT
DURING THE THOR BOOST PERIOD. ALL PYROTECHNIC
FUNCTIONS OCCURRED AT APPROXIMATELY NOMINAL
TIMES. THE RETRO-ROCKETS SATISFACTORILY PROVIDED
THE THRUST NECESSARY FOR COMPLETE SEPARATION BY
167.38 SEC.

2. AGENA PROPULSION SYSTEM

ULLAGE ROCKET IGNITION WAS SATIFACTORY. AGENA
ENGINE IGNITION OCCURED IN A NORMAL MANNER AT
T PLUS 193.73 SEC AND 90 PERCENT CHAMBER PRESSURE WAS
ACHIEVED WITHIN 1.2 SEC. THE ENGINE OPERATED SATISFACTORILY FOR 233.9 SEC AND ENGINE SHUTDOWN OCCURED
AT T PLUS 428.85 SEC ON INTEGRATOR COMMAND. THE INTEGRATOR DATA SHOW A SENSIBLE VELOCITY GAIN OF 15,799

PS FURING ORBITAL STAGE BOOST. THE INPULSE PROV-
DED BY AGENA ENGINE WAS SUFFICIENT TO GIVE THE
EHICLE ORBITAL VELOCITY AT THE FLIGHT NJECTION
LTITUDE.

3. AGENA ELECTRICAL POWER SYSTEM
O EVIDENCE OF AGENA ELECTRICAL POWER
YSTEM PROBLEMS HAS BEEN NOTED.

4. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM
HE AGENA GUIDANCE SYSTEM RESPONDED
ROPERLY TO A 8.9 SEC TIME-TO-FIRE CORRECTION AND
2.9 SEC VELOCITY-TOB-BE-GAINED CORRECTION COMMAN-
ED BY THE GROUND GUIDANCE SYSTEM. VEHICLE
TTITUDE APPEARS TO HAVE BEEN CONTROLLED SAT-
SFACTORILY DURING THE COAST PHASE AND THE ORBITAL
OOST PHASE, AND CONTROL GAS EXPENDITURE WAS
ORMAL DURING BOTH OF THOSE PERIODS. ENGINE SHUT-
OWN WAS COMMANDED SATISFACTORILY BY THE
NTEGRATOR, AND THE ASCENT TIMER PROPERLY CON-
ROLLED THE TIME AND SEQUENCE OF ALL PROGRAMMED
VENTS THAT WERE SCHEDULED TO OCCUR PRIOR TO
OSS OF TELEMETERED DATA AT VTS. HYDRAULIC

YSTEM PERFORMANCE WAS ADEQUATE. CONTROL GAS
UPPLY PRESSURE AT FADE WAS APROXIMATELY 3100
SI.

5. AGENA SPACE COMMUNCIATIONS SYSTEM
ERLORT RADAR OPERATION WAS SATISFACTORY
ND AUTO-TRACK WAS MAINTAINED ON S-BAND BEACON
ESPONSE FROM LIFTOFF TO T PLUS 459 SEC. WITH A MIN-
MUM OF BEACON COUNTDOWN AND NO OUTSIDE RADAR,
NTERFERENCE.

PERATION OF THE ACQUISITION BEACON WAS SATIS-
ACTORY. VTS TRACKED THE ACQUISITION BEACON FROM
IFTOFF TO 484 SEC. AT 486 SEC, THE TIME OF LINK 1
ELEMETRY DATA FADE FOR VTS, ALL TELEMETRY
HANNELS WERE OPERATING. AT THIS TIME THE ORBITAL
IMER WAS SET AT STEP 19, IN THE RESET-ON POSITION,
N THE INCREASE MODE, AND ALTERNATE RE-ENTRY
ISARM STATE. AGENA LINK2 WAS NOT ON DURING ASCENT
O GROUND COMMANDS WERE SENT DURING THE ASCENT
HASE. TRACKING STATION COMMUNICATIONS DURING
HE LAUNCH OPERATION WERE ADQUATE.

THE CONTROL GAS PRESSURE (LOW RANGE) WAS READING [illegible] DUCER. THE CONTROL GAS PRESSURE (HIGH RANGE) WAS READING NORMAL.

IN TASK 7 THE TELEMETRY MEASUREMENT OF TIMER MOTOR FREQUENCY BECAME INOPERATIVE AND REMAINED INOPERATIVE THROUGHOUT THE LAUNCH PHASE.

C. AEROSPACE GROUND EQUIPMENT - OBJECTIVE ACHIEVED

BOOSTER AND ORBITAL STAGE CHECKOUT WAS SATISFACTORILY ACCOMPLISHED DURING THE PRE-LAUNCH COUNTDOWN BY THE AEROSPACE GROUND EQUIPMENT HOWEVER, THE FOLLOWING PROBLEMS WERE ENCOUNTERED:

1. IN TASK 7. A 10 MINUTE DELAY RESULTED WHEN VERLORT ENCOUNTERED PROBLEMS IN ACQUIRING THE BEACON SIGNAL. THE PROBLEM WAS ELIMINATED BY SHIFTING THE VERLORT ANTENNA ANGLE.

2. IN TASK 13 THE AGENA UNBILICAL LINES BECAME ENTANGLED AND PROBLEMS WERE ENCOUNTERED IN REMOVING THE AGENA TEST PLUGS USING A PERSONNEL

"HI LIFT" BECAUSE OF HIGH SURFACE WINDS.

E. IN TASK 14 THE LAUNCHES AND BASE OF THE MISSILE AS WELL AS PERSONNEL ON THE PAD WERE FLOODED WHEN THE THRO AGE DELUGE SYSTEM CANE ON. THE PROBLEM WAS DETERMINED TO BE DUE TO FAILURE OF A BATTERY IN THE AGE. THE BATTERY WAS REPLACED WITH A BATTERY FROM PAD NO.5. AFTER LIFTOFF THE DELUGE SYSTEM FAILED TO SHUT OFF ON COMMAND FROMTHE BLOCKHOUSE. SHUT-OFF WAS ACCOMPLISHED BY HAND VALVES AT THE PAD.

4. IN TASK 15, THE FIRE TRUCK BROKE DOWN WHILE RETURNING TO THE BLOCKHOUSE AND WAS LEFT IN THE PAD AREA UNTIL AFTER LIFTOFF.

5. DURING AGENA GUIDANCE GAS PRESSURIZATION IT WAS NECESSARY TO SEND PERSONNEL TO THE PAD TO ADJUST A REGULATOR IN THE GUIDANCE GAS AGE.

6. IN PHASE III OF THE TERMINAL COUNTDOWN THE THOR AGE LOX FINE LOAD VALVE MALFUNCTIONED. TWO MICROSWITCHES THAT CONTROL THE VALVES WERE ADJUSTED AND NORMAL OPERATION RETURNED

AGE TEN VAFB
. ALSO IN TASK 14 THE AGENA MEASUREMENT OF AIR
ONDITIONIER TEMPERATURE WAS LOST AND REMAINED
NOPERATIVE THROUGHTOUT LAUNCH.
. COUNTDOWN
HE COUNTDOWN STARTED AT 0830 PST ON 28
PRIL 1962 AND PROGRESSED TO LIFTOFF WITH 1 HOLD
OTALING 31 MIN. AN AUTOMATIC TECHNICAL HOLD WAS
MPOSED DURING PHASE III OF THE TERMINAL COUNTDOWN
HEN THE LOX FINE LOAD VALVE INTHE THOR AGE
ALFUNCTIONED. NORMAL OPERATION WAS RESTORED
HEN THE TWO MICROSWITCHES THAT CONTROL THE
ALVE WERE MANUALLY ACTUATED.
. PAD DAMAGE
AMAGE TO THE PAD EQUIPMENT AND FACILITIES
AS NORMAL, AND THE REHABILITATION WORK IS EXPEC-
ED TO BE SIMILAR TO THAT AFTER PREVIOUS LAUNCHES
ROM THIS PAD.
ESSAGE CORRECTION PAGE NINE LINE 4
HE THOR AGE DELUGE SYSTEM CAME ON. THE PROBLEM
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DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIRECTIVE 5200.10